

Notes on the genera *Andropromachus* Carl, 1913 and *Spinohirasea* Zompro, 2001.

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Abstract

A review of the genera *Spinohirasea* Zompro, 2001 and *Andropromachus* Carl, 1913 is provided. *Spinohirasea* Zompro, 2001 has erroneously been synonymised with *Spiniphasma* Chen & He, 2000. The latter genus is shown to be a junior synonym of *Andropromachus* Carl, 1913 (**syn. nov.**) and consequently *Spinohirasea* Zompro is re-established as a valid genus (**stat. rev.**). *Spinohirasea crassithorax* Zompro, 2001 is a junior synonym of *Menexenus bengalensis* Brunner von Wattenwyl, 1907 (**syn. nov.**), hence *M. bengalensis* Brunner von Wattenwyl is transferred to *Spinohirasea* Zompro, 2001 (**comb. nov.**). The eggs of *Spinohirasea bengalensis* (Brunner von Wattenwyl) are described and illustrated for the first time. Illustrations and measurements of the female and male of *S. bengalensis* (Brunner von Wattenwyl) are provided, along with notes on the origin of the culture-stock PSG 272, captive breeding, alternative food plants and biology. *Menexenus modificatus* Brunner von Wattenwyl, 1907 was erroneously synonymised with *Neohirasea maerens* (Brunner von Wattenwyl, 1907) and is here shown to represent a synonym of *Promachus* (?) *bicolor* Kirby, 1904 (**syn. nov.**). Lectotypes are designated for *Andropromachus bicolor* (Kirby, 1904) and *Menexenus modificatus* Brunner von Wattenwyl, 1907.

Key words

Phasmatodea, Lonchodinae, Vietnam, *Andropromachus*, *Spinohirasea*, *Spiniphasma*, *Neohirasea*, *Qiongphasma*, *Pseudocentema*, *Spinohirasea bengalensis* **comb. nov.**, *Andropromachus bicolor*, *Menexenus modificatus*, lectotypes, new synonyms, egg.

Introduction

Since 2005 a beautiful and strikingly spiny species of the Lonchodinae from Vietnam has been successfully reared in captivity. This was identified as *Spiniphasma crassithorax* (Zompro, 2001) and included on the Phasmid Study Group culture-list as culture No. 272. Subsequent comparison of captive reared specimens with the type-specimens of *Menexenus bengalensis* Brunner von Wattenwyl, 1907 from the Gulf of Bengal in NHMW and MNHN have shown these to be the same species. Consequently, *Spinohirasea crassithorax* Zompro, 2001 is a junior synonym of Brunner von Wattenwyl's species, the valid name being *Spinohirasea bengalensis* (Brunner von Wattenwyl, 1907) **new combination**.

Whilst identifying the cultured species and checking species in closely related genera, it became obvious that *Spinohirasea* Zompro, 2001 was erroneously synonymised with *Spiniphasma* Chen & He, 2000, a genus described from SW-China. Comparison has shown *Spiniphasma* Chen & He to represent a synonym of *Andropromachus* Carl, 1913 (**new synonym**) and *Spinohirasea* to be a valid genus, which is therefore re-established (**revised status**).

The present paper provides a review of the genera *Andropromachus* Carl, 1913 and *Spinohirasea* Zompro, 2001 along with a key to the genera of the “*Neohirasea*-complex”, clarifies the identity and synonymy of *S. bengalensis* (Brunner von Wattenwyl, 1907) and provides a description and illustration of the previously unknown egg of this striking genus, along with notes on the biology and culturing of *S. bengalensis*.

Abbreviations

BMNH: Natural History Museum, London / England.
IEZU: Institute of Entomology, Zhongshuan University / China.
MNHN: Museum d'Histoire Naturelle, Paris / France.
NHMW: Naturhistorisches Museum, Vienna / Austria.
ZMFK: Zoologisches Museum “Alexander König”, Bonn / Germany.
FH: Private collection of Frank H. Hennemann, Kaiserslautern / Germany.
PEB: Private collection of Phil E. Bragg, Nottingham / England.
HT: Holotype

PT: Paratype
ST: Syntype
LT: Lectotype
PLT: Paralectotype

***Andropromachus* Carl, 1913** (see figs. 1-3)

Type-species: *Andropromachus scutatus* Carl, 1913: 49, by subsequent designation of Zompro, 2001a: 68.

Andropromachus Carl, 1913: 48, pl. 1: 1 & 3; Zompro, 2001a: 68; Otte & Brock, 2005: 46.

Promachus (?), Kirby, 1904: 377.

Promachus, Brunner von Wattenwyl, 1907: 292. (in part - **not** Stål, 1875).

Spiniphasma Chen & He, 2000: 32, fig. 7-2. (Type-species: *Spiniphasma guangxiense* Chen & He, 2000, by original designation). **new synonym.**

Description

Moderately sized and rather robust Lonchodinae, with a spinose head and dorsal body surface and a swollen mesothorax. Thorax and most of abdomen with a longitudinal median carina dorsally. Head indistinctly longer than wide, vertex convex, \pm conical and spinose. No ocelli. Eyes small and projecting hemispherically. Antennae filiform, projecting over abdominal tergite VI ($\text{\textcircled{f}}$ $\text{\textcircled{f}}$) or reaching to apex of abdomen ($\text{\textcircled{m}}$ $\text{\textcircled{m}}$). Pronotum slightly longer than the head, rectangular and spinose. Mesothorax conspicuously swollen medially and constricted anteriorly. Mesonotum with a fine, longitudinal median carina and covered with numerous prominent spines. Metathorax rectangular and slightly constricted medially. Metanotum about as wide as long and armed with several prominent spines. Mesopleura unarmed, metapleura with distinct spines. Sterna unarmed. Median segment slightly shorter than metanotum, spinose. Abdominal segments II-VII of $\text{\textcircled{m}}$ $\text{\textcircled{m}}$ parallel-sided and slightly longer than wide. Abdominal segments of $\text{\textcircled{f}}$ $\text{\textcircled{f}}$ quadrate or slightly shorter than wide and roughly parallel-sided (III-V may be gently broadened). Posterior margin of tergites II-V (sometimes also on VI-VII) of both sexes with distinct spines, VII-IX of $\text{\textcircled{f}}$ $\text{\textcircled{f}}$ each with a posteromedian hump. Posterolateral angles of tergites II-IX \pm expanded triangularly (may be indistinct in $\text{\textcircled{m}}$ $\text{\textcircled{m}}$). Sternites unarmed. Females with a distinct praeopercular organ on sternite VII. Anal segment slightly tectiform in $\text{\textcircled{m}}$ $\text{\textcircled{m}}$ with two short, finger-like appendices apically. Cerci small and slightly dorsoventrally flattened. Males with a distinct, well sclerotized vomer. Subgenital plate of $\text{\textcircled{m}}$ $\text{\textcircled{m}}$ small and cup-like, in $\text{\textcircled{f}}$ $\text{\textcircled{f}}$ short, scoop-like, pointed apically and roughly reaching apex of anal segment. Legs long and moderately slender; profemora compressed and curved basally and about as long as pro- and mesonotum combined; hind legs projecting considerably beyond apex of abdomen. Femora almost quadrate in cross-section and broader than corresponding tibiae. Ventral carinae of all femora with 2-3 sub-apical teeth. Medioventral carina of femora indistinct and unarmed. Basitarsi elongate, about as long as following three tarsomeres combined; all unarmed.

Differentiation

Similar and closely related to *Spinohirasea* Zompro, 2001 but distinguished by: the convex and spinose vertex; more slender body; relatively longer body segments and longer basitarsus of both sexes, as well as the slender mesofemora and single hooked vomer of males.

The spinose vertex is shared with the Chinese *Qionghasma* Chen, He & Li, 2002, but this genus differs by the flat head, slender mesothorax and differently structured genitalia of males.

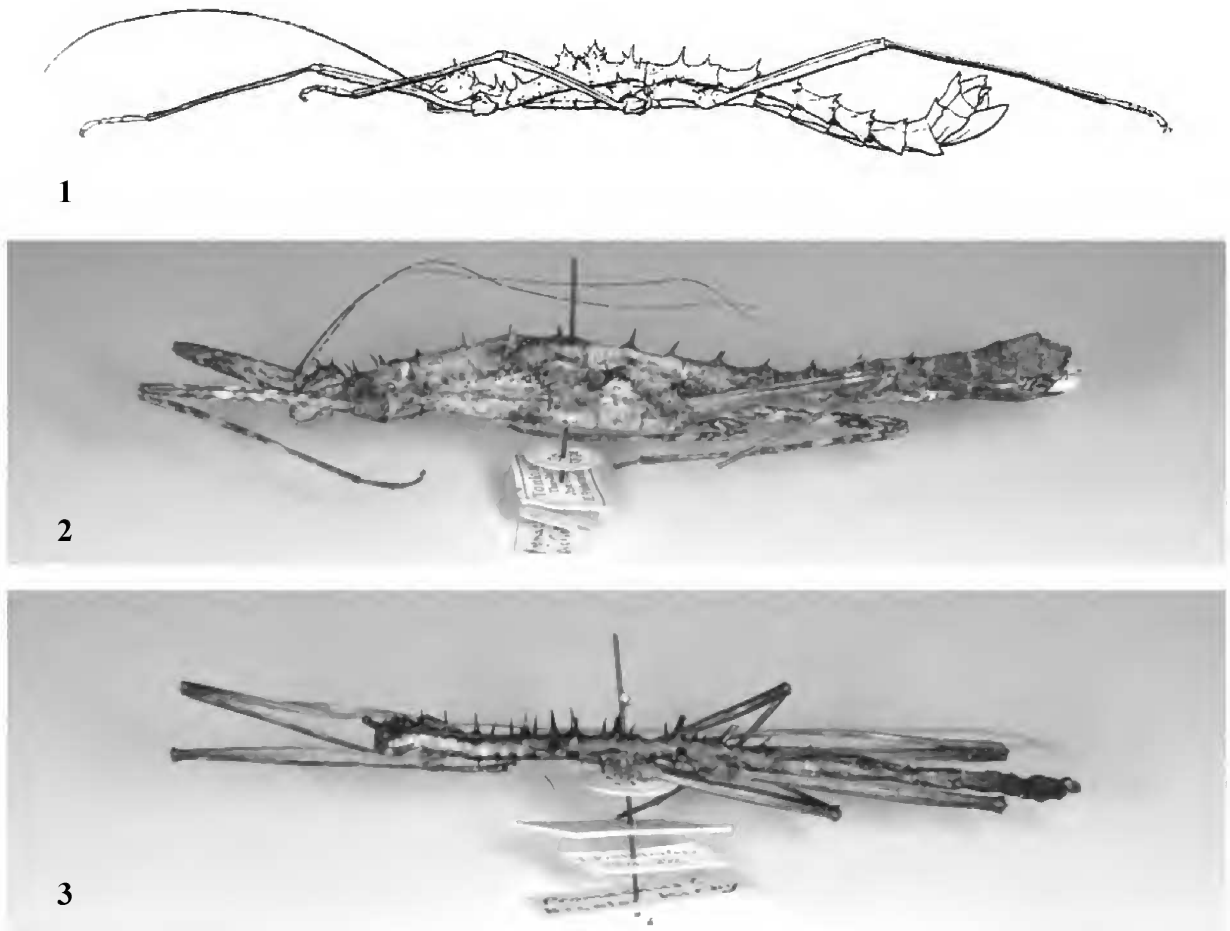


Fig. 1. *Andropromachus scutatus* Carl, 1913, ♀ (reproduced from Carl, 1913, plate 1: 3).

Fig. 2. *Andropromachus bicolor* (Kirby, 1904), ♀ ST (BMNH).

Fig. 3. *Andropromachus bicolor* (Kirby, 1904), ♂ ST (BMNH).

Comments

Carl (1913: 48) described *Andropromachus* in the tribe Necrosiini and included two species, the newly described *Andropromachus scutatus* Carl, 1913 and *Promachus* (?) *bicolor* Kirby, 1904, both from Northern Vietnam. Subsequently, Zompro (2001a: 68) designated *A. scutatus* Carl as the type-species and transferred *Andropromachus* to Lonchodinae. *Spiniphasma* Chen & He, 2000 from the Guangxi Province of South China was described based on the female only and is obviously a junior synonym of *Andropromachus* Carl (**new synonym**).

The genus is well characterized by the convex and spinose head of both sexes.

Distribution

N-Vietnam and SW-China (Guangxi Province).

Species included

1. *Promachus* (?) *bicolor* Kirby, 1904: 377 (♂, ♀). LT (here designated) ♂: Tonkin, Than-Moi, Juni-Juli, H. Fruhstorfer; H. Fruhstorfer. 1902-292.; *Promachus* ? *bicolor* Kby. (BMNH). PLT ♀: Tonkin, Than-Moi, Juni-Juli, H. Fruhstorfer; H. Fruhstorfer. 1902-292.; *Promachus* ? *bicolour* Kby. (BMNH).

= *Menexenus modificatus* Brunner von Wattenwyl, 1907: 245. (♂). LT (here designated) ♂: Tonkin, Than-Moi, Juni-Juli, H. Fruhstorfer; Coll.Br.v.W.; det. Br.v.W. *Menexenus modificatus* Br., 24.337 (NHMW, No. 457 – the more complete specimen). PLT ♂: Tonkin, Than-Moi, Juni-Juli, H. Fruhstorfer; Coll.Br.v.W.; det. Br.v.W. *Menexenus modificatus* Br. (NHMW, No. 457). **new synonym.**

Comments: *Menexenus modificatus* Brunner von Wattenwyl, 1907 was synonymised in error with *Neohirasea maerens* (Brunner von Wattenwyl, 1907) by Hausleithner (1992: 432). A lectotype is selected (above) for *Menexenus modificatus* Brunner von Wattenwyl, 1907 in order to fix and validate the newly recognized synonymy with *Promachus* (?) *bicolor* Kirby, 1904.

2. *Spiniphasma guangxiense* Chen & He, 2000: 32, fig. 7-2 (♀). HT ♀: SW-China, Guangxi Province, Wuming, 23.V.1963 leg. Yang Chikun (IEZU). PT ♀: SW-China, Guangxi Province, Huaping, 12.VI.1963, leg. Yang Chikun (IEZU).
3. *Andropromachus scutatus* Carl, 1913: 49, pl. 1: 1 & 3 (♀). HT, ♀: Tonkin, Baudet; *Andropromachus scutatus* Carl (MHNG).
4. *Promachus tonkinensis* Brunner von Wattenwyl, 1907: 300 (♂). HT ♂: Tonkin (NHMW – not traced)
Comments: As already noted by Carl (1913: 49), *Promachus tonkinensis* Brunner von Wattenwyl, 1907 might be a junior synonym of *Andropromachus bicolor* (Kirby, 1904). This however cannot be confirmed without seeing Brunner von Wattenwyl's male holotype which has not been traced in NHMW. The brief original description by Brunner von Wattenwyl matches very well with *A. bicolor* (Kirby), except for the fact that the conspicuous longitudinal median stripe on the dorsal body surface of males of *bicolor* is not mentioned. The three specimens from Than-Moi in MHNG and recorded by Carl (1913: 51) clearly represent this species.

***Spinohirasea* Zompro, 2001 stat. rev.**

Type-species: *Spinohirasea crassithorax* Zompro, 2001a: 68, by original designation.

Spinohirasea Zompro, 2001a: 67. (Type-species: *Spinohirasea crassithorax* Zompro, 2001a: 68, by original designation).

Menexenus, Brunner von Wattenwyl, 1907: 243. (in part –not *Menexenus* Stål, 1875)

Condyloscelis Redtenbacher, in litt.

[not *Spiniphasma* Chen & He, 2000: 32, fig. 7-2, **erroneous synonym** of Otte & Brock, 2005: 324]

Description

Moderately sized, broad Lonchodinae, with a spinose dorsal body surface and a gently swollen mesothorax. Head longer than wide, vertex flat and unarmed. No ocelli. Eyes small and projecting hemispherically. Antennae filiform, projecting over abdominal tergite VII. Pronotum slightly shorter than the head, trapezoidal with anterior margin narrower than posterior margin, spinose. Mesothorax gently swollen medially and slightly gradually widened towards the posterior. Mesonotum with a fine longitudinal median carina and covered with numerous prominent spines. Metathorax rectangular. Metanotum slightly convex, 1.5x wider than long and armed with several prominent spines. Mesopleura with a few minute spines, metapleura with distinct spines. Sterna unarmed. Median segment indistinctly (♀♀) or almost 1.5x shorter than metanotum (♂♂), broader than long, spinose. Abdominal segments II-VII of ♂♂ almost parallel-sided and roughly quadrate; those of ♀♀

distinctly wider than long, II-IV increasingly broadened, V-VIII gradually narrowing. Posterior margin of tergites II-V of both sexes with distinct spines, V-IX of ♀♀ each with a posteromedian hump. Posterolateral angles of tergites II-IX of ♀♀ expanded triangularly. Sternites unarmed. Females with a very prominent praeopercular organ on sternite VII. Anal segment with a longitudinal median carina in ♀♀, flat and with two short, finger-like appendices in ♂♂. Cerci small and slightly dorsoventrally flattened. Males with a highly specialized vomer, bearing four terminal hooks. Subgenital plate of ♂♂ small and cup-like, in ♀♀ short, scoop-like, pointed apically and not reaching apex of anal segment. Legs long and moderately strong; profemora slightly compressed interbasally and longer than mesothorax; hind legs projecting considerably over apex of abdomen. Femora almost quadrate in cross-section considerably broader than corresponding tibiae. Mesofemora of ♂♂ distinctly thickened. All femora of ♂♂ with several teeth on antero- and posteroventral carinae; in ♀♀ only with 2-3 minute teeth sub-apically. Medioventral carina of femora indistinct and unarmed. Basitarsi about as long as following two tarsomeres combined; all unarmed.

Differentiation

Closely related to *Andropromachus* Carl, 1913, *Qiongphasma* Chen & He, 2002 and *Neohirasea* Rehn, 1904. It shares the prominently spinose dorsal body surface and complex praeopercular organ of females with the very similar genus *Andropromachus*. It however differs by: the flat and unarmed head, broader body and relatively shorter (transverse in females) abdominal segments II-VII in both sexes; as well as the distinctly broadened, ventrally spinose meso- and metafemora and prominent, highly specialized, 4-dentate vomer of males.

The Chinese *Qiongphasma* Chen, He & Li, 2002 is only known from the male and differs from *Spinohirasea* by the decidedly larger size and stick-like body, spinose head, basally curved profemora as well as the slender mesothorax and mesofemora.

From *Neohirasea* Rehn it differs by: the more robust body and distinctly swollen mesothorax of both sexes; broadened and swollen abdominal segments II-VII and prominent, complex praeopercular organ of females, as well as the broadened, ventrally dentate mesofemora and highly specialized vomer of males which bears four terminal hooks. The eggs differ from those of *Neohirasea* Rehn by: the considerably larger size, strongly rugose capsule surface and having the micropylar plate distinctly displaced towards the polar area. Convergences with *Neohirasea maerens* (Brunner von Wattenwyl, 1907) concerning the body spination are obvious and emphasise the close relationship between *Spinohirasea* and *Neohirasea*.

Comments

Zompro (2001a: 68) established *Spinohirasea* for the new species *S. crassithorax* from Northern Vietnam and placed it in the tribe Menexenini Günther, 1953, which is not an available tribal name (see discussion below). As closely related, Zompro mentioned the genera *Andropromachus* Carl, 1913, *Neohirasea* Rehn, 1904, *Menexenus* Stål, 1875 and *Echinoclona* Carl, 1913. *Echinoclona* Carl is however a member of the subfamily Necrosiinae and a junior synonym of *Parastheneboea* Brunner von Wattenwyl, 1907, hence not closely related. *Menexenus* Stål (Type-species: *Acanthoderus lacertinus* Westwood, 1848: 80, pl. 39.6 ♀) is at once distinguished from *Spinohirasea* Zompro, *Andropromachus* Carl and *Neohirasea* Rehn by the convex and keeled subgenital plate, strongly reduced vomer, and the distinctly tectiform and split anal segment of males which forms two separate, distally elongated semi-tergites. Furthermore, the eggs of *Menexenus* Stål possess a distinct capitulum, which is not present in *Neohirasea* and *Spinohirasea* (eggs of *Andropromachus*

are not known). Consequently, a close relationship between *Menexenus* Stål and these genera is rather unlikely.

Otte & Brock (2005: 324) erroneously synonymised *Spinohirasea* Zompro with *Spiniphasma* Chen & He, 2000, a genus described from the Guangxi Province of South China and a junior synonym of *Andropromachus* Carl, 1913 (**new synonym** – see above).

This genus shows a high degree of specialisation of the genitalia, particularly the praeopercular organ in females, and the vomer in males. The praeopercular organ of females is formed by two prominently raised, rounded and swollen median elevations and two rounded, longitudinal lateral carinae. The median elevations are densely covered with short bristles at the apices. The vomer of males is very prominent with the basal section semicircular and on the right bears four unequal terminal hooks.

Distribution: Vietnam & “Bengal”.

Species included

1. *Menexenus bengalensis* Brunner von Wattenwyl, 1907: 246.
= *Spinohirasea crassithorax* Zompro, 2001a: 68. **new synonym.**

Spinohirasea bengalensis (Brunner von Wattenwyl, 1907) **n. comb.** (figs. 4-8)

Menexenus bengalensis Brunner von Wattenwyl, 1907: 246. LT ♂: Museum Paris, Bengale, Diard & Duvaucel 1815, Coll. Br.v.W., det. Br.v.W. *Menexenus bengalensis*, 23.349 (NHMW, No.463). PLT ♂: Museum Paris, Bengale, Diard & Duvaucel 1815, Type, 154. *Condyloscelis bengalensis* Redt. **Type!** (MNHN). PLT ♀: Museum Paris, Bengale, Diard & Duvaucel 1815, *Condyloscelis bengalensis* Redt., recte *Menexenus bengalensis* Br. (MNHN).

Neohirasea bengalensis, Hausleithner, 1992: 432, fig. 6c [lectotype designation]; Brock, 1998: 17; Otte & Brock, 2005: 217.

Spinohirasea crassithorax Zompro, 2001a: 68, figs. 1-7. HT ♂: Vietnam, südl. Nordvietnam, Provinz Ha Tinh, Tieflandregenwald nahe Dorf Ky Thuong, Funde auf Exkursion entlang des Baches Bau Tay, N 18°00'E 106°06', ca 180 m ü. NN, 10.VII.1997, leg. T. Ziegler, in copula (ZMFK). PT ♀: same data, in copula (ZMFK). **new synonym.**

Spiniphasma crassithorax, Otte & Brock, 2005: 324; Bresseel, 2005: 7; Bragg, 2006: 10.

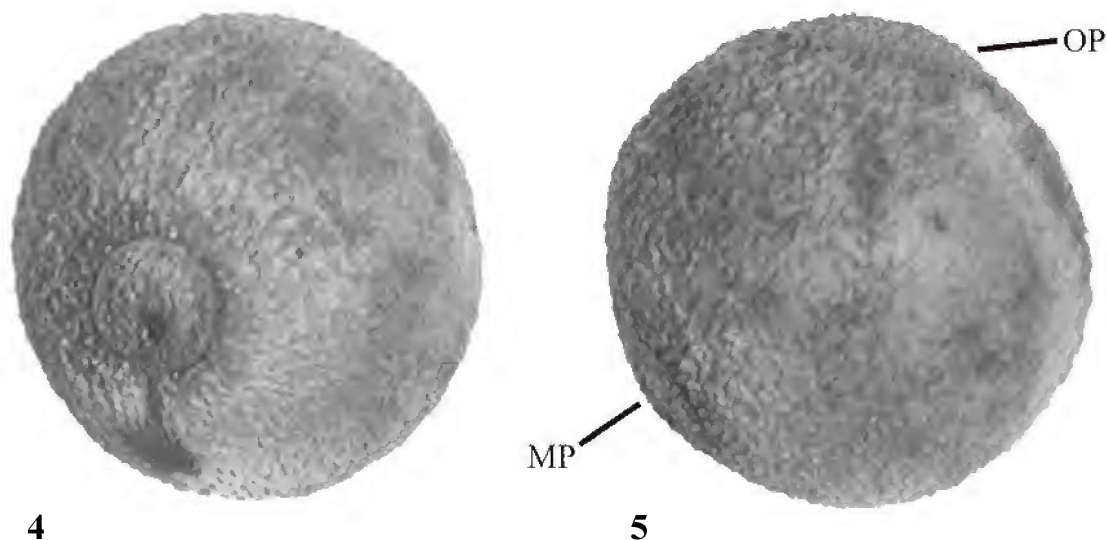
Material examined

2 ♂♂, 1 ♀, 1 ♀ (4th instar), eggs (FH, No's 0593-1 to 4 & E): ex Zucht F. Hennemann, 2006, Central Vietnam; 1 ♂ (PEB-3536), 1 ♀ (PEB-3535), eggs (PEB-3537) captive reared, P.E. Bragg, 2006, Central Vietnam.

Eggs (figs. 4 & 5)

Large in relation to size of the adult female, almost spherical. Entire capsule surface roughly granulate and irregularly covered with ridges. These ridges arranged radially around micropylar plate. Polar area with a conspicuous oval, almost smooth, blackish brown marking. Operculum almost circular, slightly convex, structured like capsule and rather small in relation to capsule size. Micropylar plate distinctly displaced towards the polar end; small, covering about ¼ of the dorsal capsule surface, shield-shaped and with a deep, narrow posteromedian gap. Outer margin with a narrow dark brown line. Micropylar cup placed in the anterior tip of the gap and almost in the centre of the plate. Median line distinct and marked by a bold blackish brown stripe, which reaches as far as to the marking of the polar area. Internal micropylar plate open with a deep posteromedian gap. General colouration of capsule and operculum creamish brown, occasionally with darker markings laterally.

Measurements: length 3.9mm, width 3.8mm, height 3.8mm, diameter of operculum 1.7mm, length of micropylar plate 0.9mm.



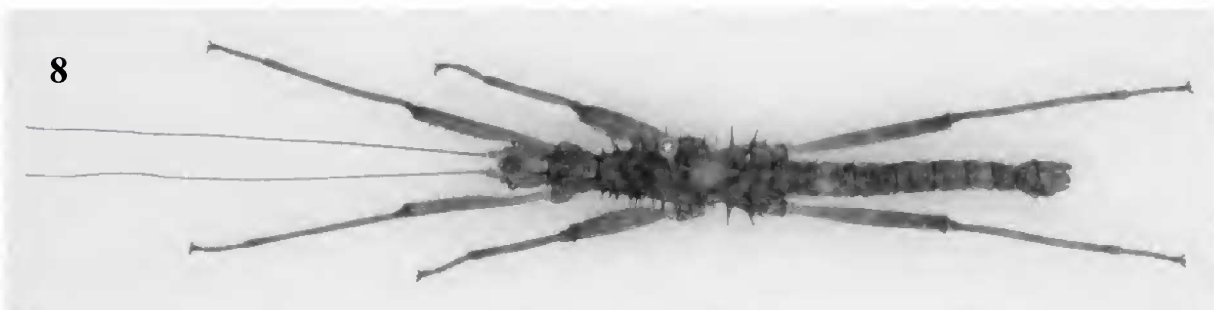
Figs. 4-5. Egg of *Spinohirasea bengalensis* (Brunner von Wattenwyl, 1907).
4. Dorsal view. **5.** Lateral view.

Comments

Brunner von Wattenwyl (1907: 246) originally described *Menexenus bengalensis* from two males and one female with the limited and doubtful data „Bengale“ in MNHN. One of the males was retained by Brunner von Wattenwyl and is now housed in NHMW. This specimen was subsequently selected as the LT of *M. bengalensis* by Hausleithner (1992: 432) who transferred this species to the genus *Neohirasea* Rehn, 1904. All three type specimens are in rather poor condition and have shrunken and lost their natural colours due to a former preservation in ethanol, probably the reason why the ♀ PLT in particular is considerably shorter than recently collected and captive reared material. Brunner von Wattenwyl (1907: 246) cited body lengths of 43.0 mm for the male and 65.0 mm for the female.

Spinohirasea crassithorax Zompro, 2001 was described from a male and female collected in the Ha Tinh Province of northeast Vietnam close to the border to Laos. Comparison with the type specimens of *Menexenus bengalensis* Brunner von Wattenwyl, in NHMW and MNHN leave no doubt that *S. crassithorax* Zompro is the same species and consequently a junior synonym. In describing *S. crassithorax*, Zompro provided detailed descriptions of the male and female of *Menexenus bengalensis* Brunner von Wattenwyl.

Due to Brunner von Wattenwyl (1907) and Zompro (2001a) both describing the colouration based on discoloured preserved specimens, a description of the rather pretty colouration of live insects appears warranted. It is more or less identical in both sexes. General colouration of the head, body and legs bright mid to dark green or greenish pale brown (darkening with age). Legs gently annulated with slightly darker green, knees black. A red stripe is running along the entire lateral body surface (less distinct on abdomen), beginning on the pronotum and ending on abdominal tergite IX. Meso- and metasternum red with pale yellow spots. All larger spines of the body with brown tips. Antennae dark green basally but soon becoming black and with a white transverse band just before the apex. Eyes mid-brown.



Figs. 6-8. *Spinohirasea bengalensis* (Brunner von Wattenwyl, 1907).
6. Live pair; 7. ♀ (coll. PEB, photo by P.E. Bragg); 8. ♂ (coll. PEB, photo by P.E. Bragg).

Culture history & breeding

Bresseel (2005) provided brief information on the captive breeding, and biology of the present culture-stock of *S. bengalensis*. It has proven rather easy to rear in captivity and was subsequently (Bragg, 2006: 10) included on the Phasmid Study Group culture-list as culture No. 272 “*Spiniphasma crassithorax* (Zompro)”. Although Bresseel recorded the origin as Cambodia, enquiries suggest that this was a mistake by the dealer when Bresseel received the

original culture stock. It seems the original specimens of the present culture-stock were collected by Sergey Ryabov (Director of the Tula Zooexotarium, Russia) in Central Vietnam in 2002 or 2003.

Alternative food plants readily accepted in captivity are: bramble (*Rubus fruticosus*, Rosaceae), raspberry (*Rubus idaeus*, Rosaceae), rose (*Rosa* spp., Rosaceae), hypericum (*Hypericum patulum*, Hypericaceae) and oak (*Quercus rubus* & *Q. petraea*, Fagaceae). In moderate humidity and temperatures of 22-28°C this species is easy to rear but not very productive. A daily spray of fresh water is appreciated by both nymphs and adults, and plenty of humidity during the night is recommended to ensure successful moulting. The incubation time for eggs is 4-6 months and the hatching rates are high, being close to 100%.

Biology

This species does not show any particular active defence, except dropping to the ground and quickly walking away if disturbed. The prominent body armature is an effective feature of passive defence. Mating takes place very frequently, with males usually staying on a female's back for their entire life, and continues until the death of one partner. Hence, adults are mostly found mating, as were the type specimens of *S. crassithorax* Zompro and two further couples in the Ha Tinh Province of Vietnam (Zompro, 2001a: 68). Adults are quite long-lived and easily exceed six months of age in captivity. Females are not prolific egg-layers and, due to the relatively large size of the eggs, on average only produce one per day, making a total of about 180 eggs. Newly hatched nymphs are brown and destitute of spines, but by the 2nd instar the typical body armature is clearly evident. Nymphs are brown with pale mottling and only tend to take on the bright green colouration of the adults with the final ecdysis.

<i>Spinohirasea bengalensis</i> Measurements in mm.	♂ HT of <i>crassithorax</i> (ZMFK)*	♀ PT of <i>crassithorax</i> (ZMFK)*	♂♂ (captive reared)	♀♀ (captive reared)
Body	47.0	77.0	43.0-48.5	69.0
Head	4.4	6.8	3.1-4.5	6.5
Pronotum	3.3	5.1	3.2-3.4	5.1
Mesonotum	9.2	18.5	8.9-9.4	15.0
Metanotum	3.8	4.5	3.5-3.9	4.4
Median segment	2.5	4.3	2.2-2.5	4.2
Profemora	14.0	21.8	11.2-12.9	17.8
Mesofemora	9.0	16.0	8.2-8.9	13.7
Metafemora	12.7	23.0	12.8-13.1	19.9
Protibiae	15.0	22.5	12.6-13.8	20.6
Mesotibiae	10.0	17.6	8.9-9.0	14.8
Metatibiae	11.4	25.8	14.6-15.0	21.7
Antennae	-	-	41.0	54.0

* = according to Zompro (2001a)

Distribution

This species has recently been recorded Zompro (2001a) from Northern Vietnam, Ha Tinh Province (Ky Thuong, Bau Hop brook 180m & Quang Binh, Den 280m) and Central Vietnam. Although there have so far not been any records from Laos this species almost certainly occurs there as well. The known records in Vietnam all relate to tropical lowland rainforest.

The type locality is "Bengale", which however is doubtful because there have not been

any records of *S. bengalensis* from the Gulf of Bengal since its original description by Brunner von Wattenwyl (1907: 246).

Discussion

The genera *Andropromachus* Carl, 1913 (= *Spiniphasma* Chen & He, 2000 **new synonym**), *Neohirasea* Rehn, 1904 (= *Paracentema* Redtenbacher, 1908, synonymised by Zompro, 2001a: 68) and *Spinohirasea* Zompro, 2001 are obviously closely related and together form a generic complex within the subfamily Lonchodinae Brunner v. Wattenwyl, 1893, here provisionally termed the “*Neohirasea*-complex”. Zompro (2001a: 68) placed these genera in the tribe Menexenini Bradley & Galil, 1977, which is not an available name due to being an unnecessary replacement name for Neopromachini Günther, 1953. The name Menexi was first introduced by Brunner von Wattenwyl (1893: 81). Bradley & Galil (1977: 182) disregarded the fact that Günther (1953: 560) listed the type-genus *Menexenus* Stål, 1875 in Lonchodini and had thus synonymised the two tribes. Furthermore, they misinterpreted Günther’s Neopromachini, which did not contain *Menexenus* but those genera of Lonchodinae in which females have a conspicuous bird beak-like ovipositor. These were recently assigned to Eurycanthinae by Zompro (2001b: 21).

Chen & He (in Chen, He & Li, 2002) described two genera from the Hainan Province, China, both of which appear to belong in the “*Neohirasea*-complex”. Unfortunately, the type specimens were not available for examination, so no decision on their actual systematic position can be drawn with confidence. *Qionghasma* Chen, He & Li, 2002 seems to be related to *Spinohirasea* Zompro, 2001 which is seen in the spinose body and shape of the male genitalia (for differentiation see above). The original description and illustration of the female genitalia of *Pseudocentema* Chen, He & Li, 2002 indicate this genus to be close to *Neohirasea* Rehn. Chen & He (2002: 107) distinguished it from *Paracentema* Redtenbacher, 1908, a synonym of *Neohirasea*, by the lack of a composite, spinose central swelling on the mesonotum, lack of teeth along the posterior margin of the anal segment, and lack of spines on the metanotum. The first two characters are however true for the type species of *Neohirasea*, *Phasma (Acanthoderus) japonicum* de Haan, 1842, which is why *Pseudocentema* is likely to represent a junior synonym. However, without having the holotype of the type species as well as males and eggs at hand for examination, no decision can be made with confidence.

Members of the “*Neohirasea*-complex” are moderately sized insects with the dorsal body surface more or less prominently spinose. Females are rather broad and stout, the abdominal segments being indistinctly longer than wide or even transverse. The anal segment of the male is flat or slightly tectiform, and has the posterior margin with a triangular posteromedian excavation and/or with two small, rounded or conical extensions. The vomer is well developed, sclerotized and bears 1-4 terminal hooks. The subgenital plate of females is small, flat and scoop-like or slightly keeled with the apex \pm pointed. Eggs are more or less spherical, have a rather small, shield-shaped to almost circular micropylar plate and lack a stalked capitulum.

Another genus that appears to be closely related and might perhaps belong to this generic complex as well is *Acanthophasma* Chen & He, 2000 (Type-species: *Oxyartes varia* Chen & He, 1992). This was however only described from the male and the descriptions presented by Chen & He (1992 & 2000) do not allow any more precise positioning of the genus. Chen & He (2000: 33) placed it in close relation to *Oxyartes* Stål, 1875 (subfamily Necrosciinae), which is most certainly not the case. From the illustration of the type-species provided by Chen & He (2000: 33, fig. 7-3) it resembles *Andropromachus* Carl but differs by having small, squamiform alae.

A list and preliminary key to distinguish between the genera of the “*Neohirasea*-

complex” appear warranted and are presented below.

1. *Andropromachus* Carl, 1913: 48. Type-species: *Andropromachus scutatus* Carl, 1913: 49, pl. 1.1 & 1.3, by subsequent designation of Zompro, 2001a: 68.
= *Spiniphasma* Chen & He, 2000: 32. Type-species: *Spiniphasma guangxiense* Chen & He, 2000: 32, fig. 1, by original designation. **new synonym.**
2. *Neohirasea* Rehn, 1904: 84. Type-species: *Phasma (Acanthoderus) japonicum* de Haan, 1842: 135, pl. 12: 4, by original designation.
= *Paracentema* Redtenbacher, 1908: 477. Type-species: *Paracentema stephanus* Redtenbacher, 1908: 477, by monotypy. [Synonymised by Zompro, 2001a: 68]
3. *Pseudocentema* Chen, He & Li, 2002 : 106. Type-species: *Pseudocentema bispinatum* Chen & He (in: Chen, He & Li), 2002: 107, figs. 8a-b, by original designation.
4. *Qiongphasma* Chen, He & Li, 2002: 106. Type-species: *Qiongphasma jianfengense* Chen & He (in: Chen, He & Li), 2002: 106, figs. 7a-b, by original designation.
5. *Spinohirasea* Zompro, 2001a: 67. Type-species: *Spinohirasea crassithorax* Zompro, 2001a: 68, figs. 1-7, by original designation.

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| 1. | Back of head flat and unarmed. | 2 |
| - | Back of head strongly convex and spinose. | <i>Andropromachus</i> |
| 2. | Praeopercular organ indistinct. | 3 |
| - | Sternite VII with a very prominent and complex praeopercular organ. | <i>Spinohirasea</i> |
| 3. | Metanotum with a pair of posterior spines. | <i>Neohirasea</i> |
| - | Metanotum unarmed. | <i>Pseudocentema</i> |

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| 1. | Head unarmed. | 3 |
| - | Head spinose. | 2 |
| 2. | Back of head flat; mesothorax slender. | <i>Qiongphasma</i> |
| - | Back of head convex; mesothorax swollen medially. | <i>Andropromachus</i> |
| 3. | Mesofemora strongly broadened and spinose ventrally; vomer with four unequal terminal hooks . | <i>Spinohirasea</i> |
| - | Mesofemora slender; not conspicuously spinose and ventrally unarmed except for minute sub-apical spines; vomer with a single terminal hook. | <i>Neohirasea</i> |

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